

**What is claimed is:**

1. A method of manufacturing an optical component,

the optical component comprising a substrate having an optical surface, and a mounting frame for mounting the substrate, the mounting frame comprising plural contact portions for providing a mounting contact between the mounting frame and the substrate, wherein the plural contact portions of the mounting frame are disposed at predetermined distances from each other,

the method comprising:

providing a measuring frame separate from the mounting frame for mounting the substrate, wherein the measuring frame comprises plural contact portions for providing a mounting contact between the measuring frame and the substrate, wherein a number of the contact portions of the measuring frame is equal to a number of the contact portions of the mounting frame, and wherein respective distances between the contact portions of the measuring frame are substantially equal to the corresponding distances between the contact portions of the mounting frame;

measuring a shape of the optical surface of the substrate, while the substrate is mounted on the measuring frame such that the contact portions of the measuring frame are attached to the substrate at respective contact regions of the substrate;

processing the optical surface of the substrate; and

mounting the substrate on the mounting frame such that the contact portions of the mounting frame are attached to the substrate at regions which are substantially the same as the contact regions at which the substrate was attached to the measuring frame.

2. The method according to claim 1, wherein the processing of the optical surface is carried out while the substrate is mounted on the measuring frame.
3. The method according to claim 1, wherein the number of the contact portions of the mounting frame is three.
4. The method according to claim 1, wherein the contact portions of the mounting frame have a configuration that is substantially the same as a configuration of the contact portions of the measuring frame.
5. The method according to claim 1, further comprising determining differences between the shape of the optical surface and a target shape thereof, wherein the processing of the optical surface is carried out in dependence of the determined differences.
6. The method according to claim 1, wherein the optical component is designed for being mounted in an optical system such that the substrate has a predetermined orientation with respect to a direction of gravity, and wherein the measuring of the shape of the optical surface of the substrate is performed while the substrate is disposed in an orientation with respect to the direction of gravity which is substantially the same as the predetermined orientation.
7. The method according to claim 1, wherein the processing of the optical surface is carried out by at

- least one of magneto-rheological fluid processing, ion beam processing, fluid jet processing, chemical and/or mechanical polishing, etching, milling, grinding, and hot or cold coating processes.
8. The method according to claim 1, wherein the measuring of the shape of the optical surface is carried out by at least one of interferometric measurement, measurement involving tactic coordinates, and measurement involving pattern projection.
9. A method of manufacturing an optical component, the optical component comprising a substrate having an optical surface, and a mounting frame for mounting the substrate, the method comprising:
- assembling the optical component by mounting the substrate on the mounting frame;
- measuring a shape of the optical surface of the substrate; and
- processing the optical surface of the substrate;
- wherein the substrate is mounted on the mounting frame during the measuring of the shape of the optical surface and the processing of the optical surface.
10. The method according to claim 9, wherein the substrate remains permanently mounted on the mounting frame during the measuring of the shape of the optical surface and the processing of the optical surface.
11. The method according to claim 9, wherein the mounting frame comprises more than three contact portions for providing a mounting contact between the mounting

frame and the substrate, the contact portions of the mounting frame being disposed at distances from each other.

12. The method according to claim 9, wherein the mounting frame of the optical component is designed to be mounted to at least one adjacent mounting frame in an optical system, the method further comprising mounting the mounting frame to the at least one adjacent mounting frame and measuring the shape of the optical surface of the substrate while the mounting frame is mounted to the at least one adjacent mounting frame.
13. The method according to claim 9, further comprising determining differences between the shape of the optical surface and a target shape thereof, wherein the processing of the optical surface is carried out in dependence of the determined differences.
14. The method according to claim 9, wherein the optical component is designed for being mounted in an optical system such that the substrate has a predetermined orientation with respect to a direction of gravity, and wherein the measuring of the shape of the optical surface of the substrate is performed while the substrate is disposed in an orientation with respect to the direction of gravity which is substantially the same as the predetermined orientation.
15. The method according to claim 9, wherein the processing of the optical surface is carried out by at least one of magneto-rheological fluid processing, ion beam processing, fluid jet processing, chemical and/or mechanical polishing, etching, milling, grinding, and hot or cold coating processes.

16. The method according to claim 9, wherein the measuring of the shape of the optical surface is carried out by at least one of interferometric measurement, measurement involving tactic coordinates, and measurement involving pattern projection.
17. A method of manufacturing an optical component, the optical component comprising at least two substrates having at least one optical surface each and a mounting frame for mounting the at least two substrates, the method comprising:  
  
assembling the optical component by mounting the at least two substrates on the mounting frame;  
  
measuring an optical property of the at least two substrates while the at least two substrates are mounted on the mounting frame using a measuring beam which passes through two optical surfaces of at least one substrate; and  
  
processing the optical surface of at least one of the at least two substrates, wherein the processing of the optical surface is carried out while the at least two substrates remain permanently mounted on the mounting frame.
18. An optical component, manufactured according to the method according to one of claims 1, 9 or 17.
19. A method of manufacturing an optical system having plural optical components, wherein at least one optical component of the plural optical components comprises a substrate having an optical surface, and a mounting frame for mounting the substrate, the mounting frame comprising plural contact portions for

providing a mounting contact between the mounting frame and the substrate, wherein the plural contact portions of the mounting frame are disposed at predetermined distances from each other, the method comprising:

providing a measuring frame separate from the mounting frame for mounting the substrate, wherein the measuring frame comprises plural contact portions for providing a mounting contact between the measuring frame and the substrate, wherein a number of the contact portions of the measuring frame is equal to a number of the contact portions of the mounting frame, and wherein respective distances between the contact portions of the measuring frame are substantially equal to the corresponding distances between the contact portions of the mounting frame;

measuring a shape of the optical surface of the substrate, while the substrate is mounted on the measuring frame such that the contact portions of the measuring frame are attached to the substrate at respective contact regions of the substrate;

processing the optical surface of the substrate; and

mounting the substrate on the mounting frame such that the contact portions of the mounting frame are attached to the substrate at regions which are substantially the same as the contact regions at which the substrate was attached to the measuring frame,

and assembling the plural optical components to form the optical system.

20. A method of manufacturing an optical system having plural optical components, wherein at least one optical component of the plural optical components comprises a substrate having an optical surface, and a mounting frame for mounting the substrate, the method comprising:

assembling the at least one optical component by mounting the substrate on the mounting frame;

measuring a shape of the optical surface of the substrate; and

processing the optical surface of the substrate;

wherein the substrate is mounted on the mounting frame during the measuring of the shape of the optical surface and the processing of the optical surface;

the method further comprising assembling the plural optical components to form the optical system.

21. A method of manufacturing an optical system having plural optical components, wherein at least one optical component of the plural optical components comprises at least two substrates having at least one optical surface each and a mounting frame for mounting the at least two substrates, the method comprising:

assembling the at least one optical component by mounting the at least two substrates on the mounting frame;

measuring an optical property of the at least two substrates while the at least two substrates are mounted on the mounting frame using a measuring beam

which passes through two optical surfaces of at least one substrate;

processing the optical surface of at least one of the at least two substrates, wherein the processing of the optical surface is carried out while the at least two substrates remain permanently mounted on the mounting frame;

the method further comprising assembling the plural optical components to form the optical system.

22. A method of manufacturing an optical system having plural optical components, wherein at least one optical component of the plural optical components comprises a substrate having an optical surface, and a mounting frame for mounting the substrate, the mounting frame comprising plural contact portions for providing a mounting contact between the mounting frame and the substrate, wherein the plural contact portions of the mounting frame are disposed at predetermined distances from each other,

and wherein the at least one optical component was manufactured according to a method comprising:

providing a measuring frame separate from the mounting frame for mounting the substrate, wherein the measuring frame comprises plural contact portions for providing a mounting contact between the measuring frame and the substrate, wherein a number of the contact portions of the measuring frame is equal to a number of the contact portions of the mounting frame, and wherein respective distances between the contact portions of the measuring frame are substantially



equal to the corresponding distances between the contact portions of the mounting frame;

measuring a shape of the optical surface of the substrate, while the substrate is mounted on the measuring frame such that the contact portions of the measuring frame are attached to the substrate at respective contact regions of the substrate;

processing the optical surface of the substrate; and

mounting the substrate on the mounting frame such that the contact portions of the mounting frame are attached to the substrate at regions which are substantially the same as the contact regions at which the substrate was attached to the measuring frame;

the method of manufacturing an optical system comprising assembling the plural optical components to form the optical system.

23. A method of manufacturing an optical system having plural optical components, wherein at least one optical component of the plural optical components comprises a substrate having an optical surface and a mounting frame for mounting the substrate, and was manufactured according to a method comprising:

assembling the optical component by mounting the substrate on the mounting frame;

measuring a shape of the optical surface of the substrate; and

processing the optical surface of the substrate;

wherein the substrate is mounted on the mounting frame during the measuring of the shape of the optical surface and the processing of the optical surface;

the method of manufacturing an optical system comprising assembling the plural optical components to form the optical system.

24. A method of manufacturing an optical system having plural optical components, wherein at least one optical component of the plural optical components comprises at least two substrates having at least one optical surface each and a mounting frame for mounting the at least two substrates, and was manufactured according to a method comprising:

assembling the optical component by mounting the at least two substrates on the mounting frame;

measuring an optical property of the at least two substrates while the at least two substrates are mounted on the mounting frame using a measuring beam which passes through two optical surfaces of at least one substrate; and

processing the optical surface of at least one of the at least two substrates, wherein the processing of the optical surface is carried out while the at least two substrates remain permanently mounted on the mounting frame;

the method of manufacturing an optical system comprising assembling the plural optical components to form the optical system.

25. An optical system, manufactured in accordance with the method of one of claims 19 to 24.